

**Creating anti-infective opportunties** 

"Patients are at the heart of what we do"

**Investor presentation** 

February 13, 2024



#### **Table of contents**

- Executive summary
- Portfolio
  - Antifungals
    - Cresemba<sup>®</sup> (isavuconazole)
    - Fosmanogepix
    - BAL2062
  - Antibiotic
    - Zevtera<sup>®</sup> (ceftobiprole)
    - Tonabacase
- Financials & Outlook
- Appendix





**Executive summary** 



### **Experienced leadership team**



David Veitch CEO

Joined

2014

Previous roles:







Adesh Kaul CFO

2009







Marc Engelhardt MD, Ph.D. CMO

2010







Gerrit
Hauck
Ph.D. CTO

2018





**Laurenz Kellenberger Ph.D.** CSO

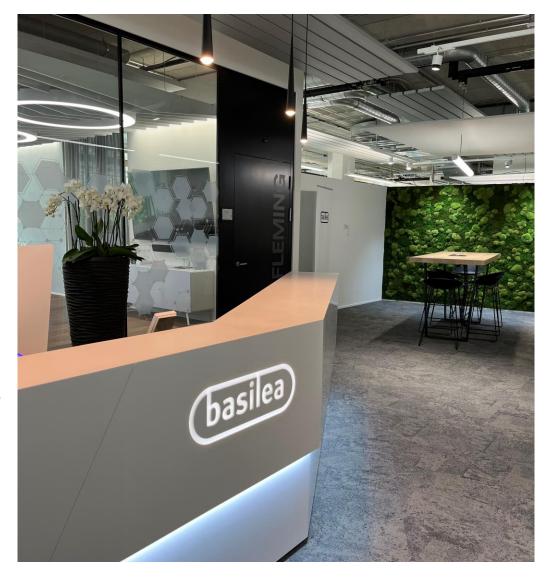
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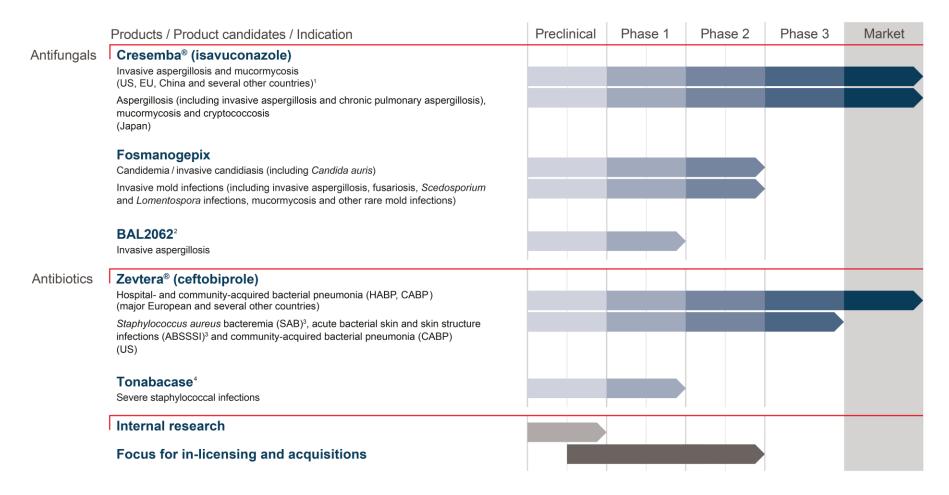


### At a glance

- Focus on the treatment of severe bacterial and fungal infections
- Recognized ability to establish and manage partnerships in both the development and commercial phase
- Cresemba® and Zevtera® two revenue generating hospital anti-infective brands
- Commercial products complemented by clinical and preclinical programs, including
  - Fosmanogepix, a phase-3-ready broad-spectrum antifungal
  - BAL2062, an antifungal for the potential treatment of invasive aspergillosis
  - Tonabacase, an endolysin antibacterial for the potential treatment of severe staphylococcal infections
- Profitable biotech company listed on SIX Swiss Stock Exchange, SIX: BSLN
- Located in the Basel area life sciences hub, Switzerland



### Innovative anti-infective pipeline



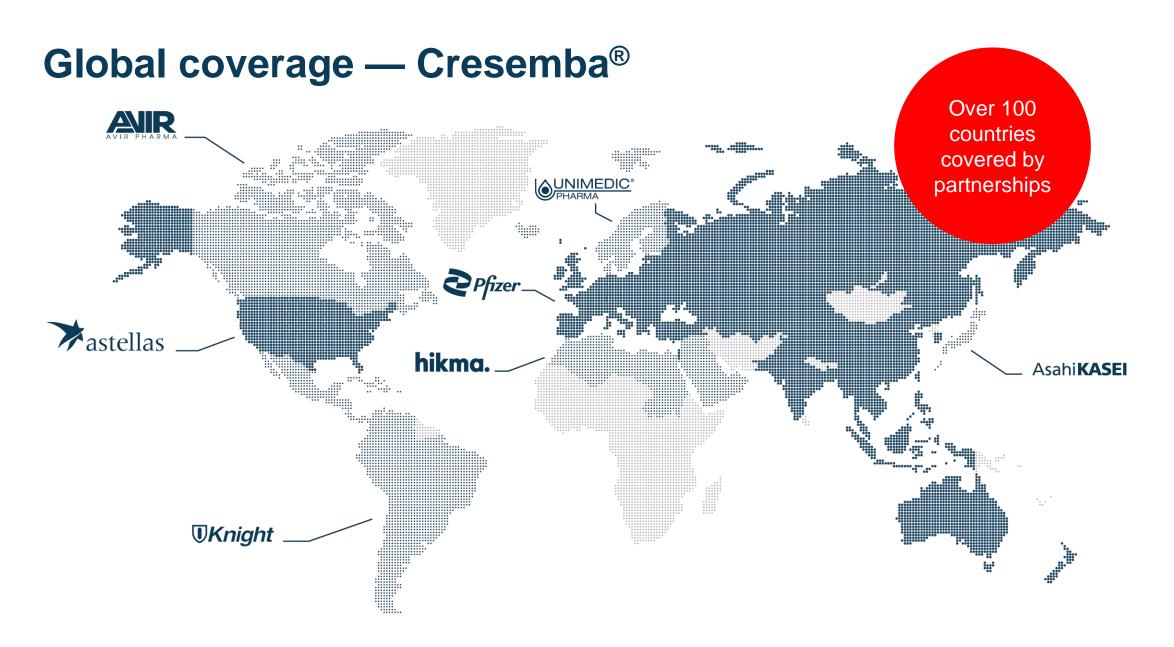
<sup>1</sup> The registration status and approved indications may vary from country to country.

<sup>4</sup> Exclusive option to in-license upon completion of preclinical profiling



<sup>2</sup> Formerly GR-2397

<sup>3</sup> Phase 3 program was funded in part with federal funds from the US Department of Health and Human Services (HHS); Administration for Strategic Preparedness and Response (ASPR); Biomedical Advanced Research and Development Authority (BARDA).



## The company we keep — Established strong partnerships

#### License partners





Europe (excl. Nordics), China Asia-Pacific, Russia, Turkey and Israel (Cresemba®) US (Cresemba®)

#### **AsahiKASEI**

Japan (Cresemba®)



#### **Distribution partners**



Europe (excl. Nordics), Israel (Zevtera®)



Nordics (Cresemba® and Zevtera®)

#### hikma.

MENA region (Cresemba® and Zevtera®)

(Cresemba® and Zevtera®)

#### **UKnight**

LatAm (Cresemba® and Zevtera®)



Russia and the Eurasian Economic Union (Zevtera®)

Double-digit percentage royalties on sales by license partners

Participation
in sales of
distribution
partners
through
transfer price

>CHF 355 mn upfront and milestone payments received



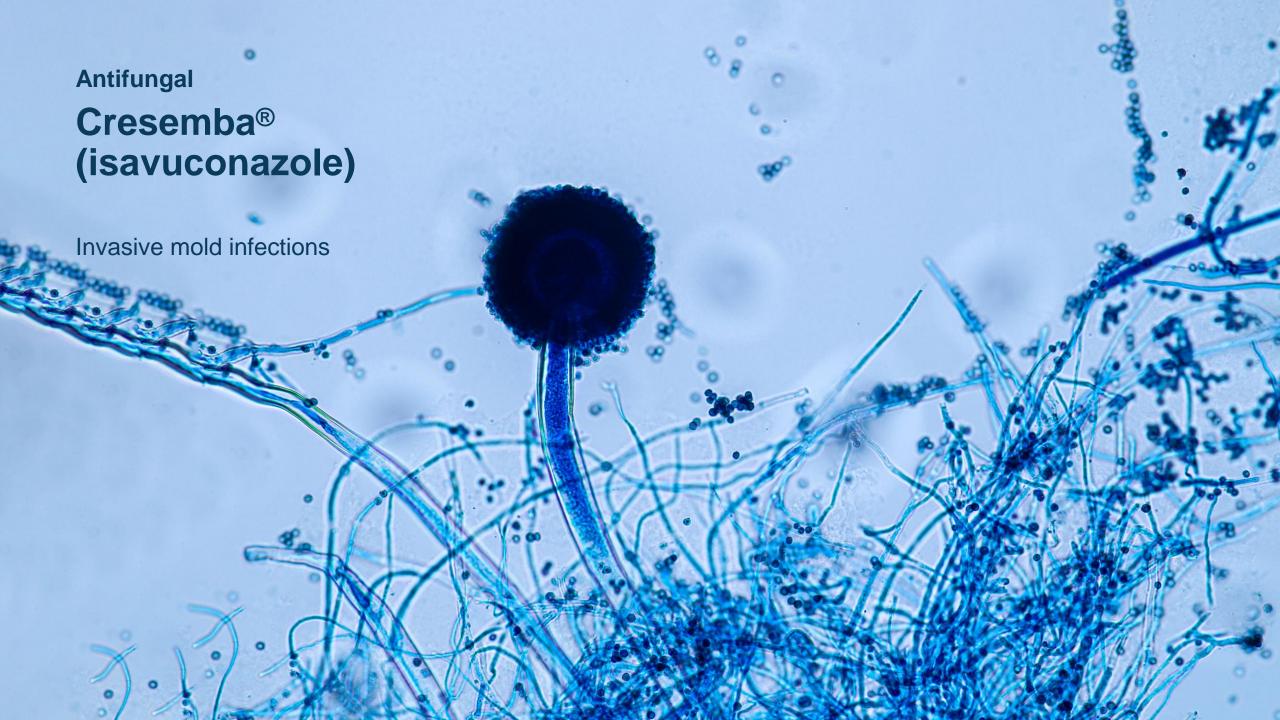
Canada

>CHF 1 bn

in potential

milestones

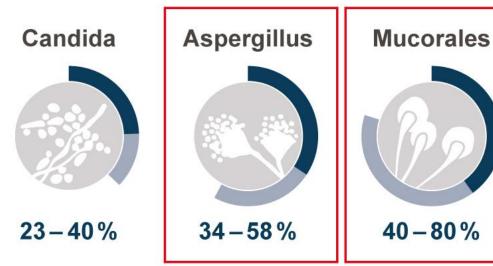
remaining



# The market — Invasive fungal infections

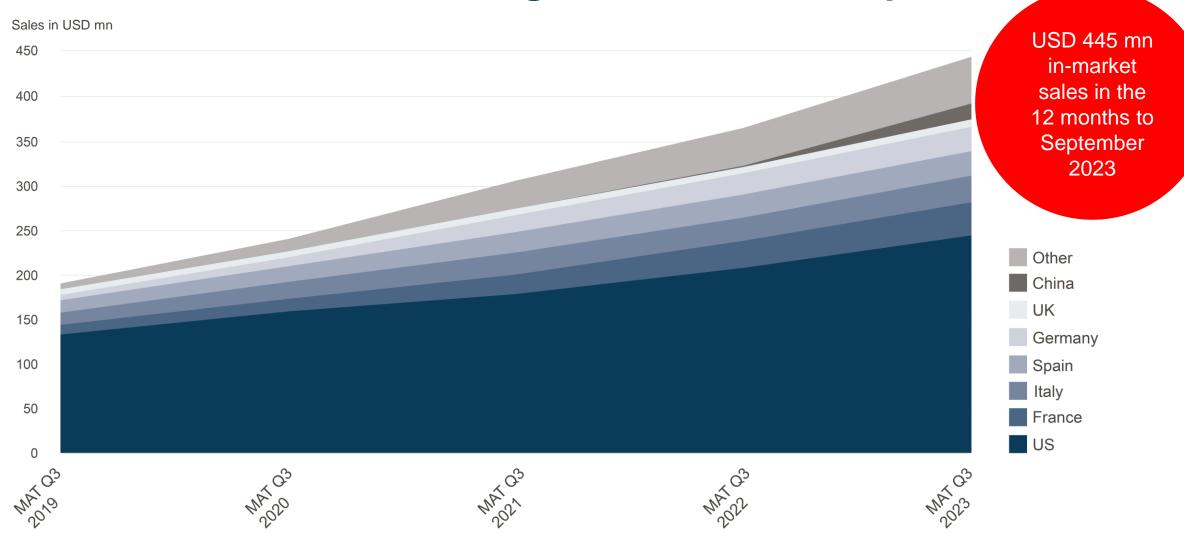
- Severe, potentially life-threatening infections mainly affecting immunocompromised patients
- An important cause of morbidity and mortality in cancer patients undergoing intensive chemotherapy regimens
- Rising number of immunocompromised patients (cancer and transplantations) driving therapeutic demand
- Mucorales infections on the rise doubled from 2000 to 2013
- Limitations of current therapies (spectrum of activity, toxicity, effective plasma levels) drive the need for new agents

#### Mortality rates for invasive fungal infections\*\*



<sup>\*\*</sup>Kullberg/Arendrup *N Engl J Med* 2015, Baddley *Clin Infect Dis* 2010, Roden *Clin Infect Dis* 2005, Greenberg *Curr Opin Infect Dis* 2004.

Cresemba continues strong in-market sales uptake

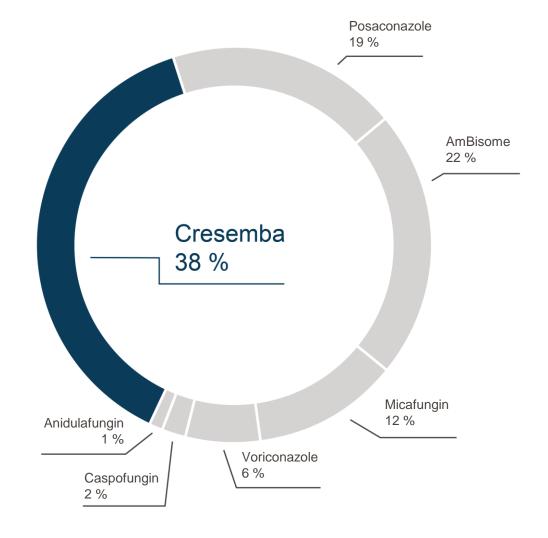


MAT: Moving annual total; Source: IQVIA Analytics Link, September 2023



# Cresemba has become the market leader in the US in terms of value

 Consistently increased market share among best-in-class antifungals\* since launch to 38% by September 2023\*\*



<sup>\*</sup> Best-in-class antifungals: Cresemba (isavuconazole), posaconazole, voriconazole, AmBisome, anidulafungin, caspofungin, micafungin

**basilea** Creating anti-infective opportunities

<sup>\*\*</sup>Market share based on MAT Q3 2023, in-market sales reported as moving annual total (MAT) in US dollar; rounding consistently applied. Source: IQVIA Analytics Link, September 2023

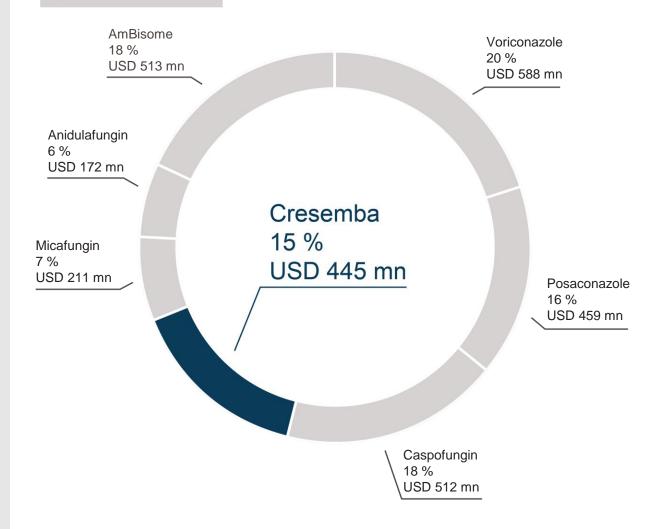
# Global sales of best-inclass antifungals\* by product

**USD 2.9 bn sales (MAT Q3 2023)** 

Significant potential to increase Cresemba® (isavuconazole) global market share

- Launched in 71 countries
- Pediatric label extension in US granted in December
   2023; market exclusivity extended to September 2027
- Pediatric label extension in EU anticipated in 2024;
   would lead to market exclusivity extension by two years to October 2027

VFEND (VORICONAZOLE) 2014 worldwide peak sales approx. USD 900 mn



\* Best-in-class antifungals: Cresemba (isavuconazole), posaconazole, voriconazole, AmBisome, anidulafungin, caspofungin, micafungin



MAT: Moving annual total; Source: IQVIA Analytics Link, September 2023, rounding consistently applied

# Cresemba — Differentiated by spectrum, safety and tolerability

- Broad spectrum of activity against molds, including emerging molds (mucorales)
- Consistent plasma levels
- Statistically fewer drug-related adverse events and treatment-emergent adverse events (liver, skin, eye) in invasive aspergillosis patients vs. voriconazole in SECURE phase 3 study
- Can be administered without restriction in patients with renal impairment

- Manageable drug-drug interaction profile
- Once daily maintenance dose, i.v./oral treatment
- ECIL-6 guideline: Cresemba® recommended for the first-line treatment of invasive aspergillosis in leukemia and hematopoietic stem cell transplant patients. ECIL states that isavuconazole is as effective as voriconazole with a better safety profile.

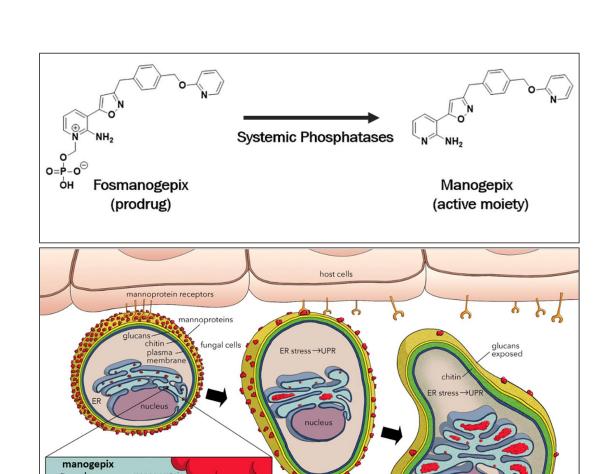


## Fosmanogepix – A highly attractive antifungal asset

- First-in-class, intravenous and oral antifungal with a novel mechanism of action
- Broad spectrum antifungal activity against yeasts, molds and dimorphic fungi, including Candida auris, azole-resistant Aspergillus spp. and Fusarium spp.
- Three successfully completed phase 2 studies for the treatment of
  - Candidemia, including Candida auris
  - Mold infections
- Phase-3-ready for yeast and mold infections with first phase 3 study in candidemia / invasive candidiasis expected to start mid-2024
- Potential to become our next lead commercial product and mid-term value driver
- Asset acquired from Pfizer, which maintains the right of first negotiation for commercialization

#### **Overview**

- Fosmanogepix is the prodrug of manogepix
- Novel mechanism of action
- Inhibition of the protein Gwt1 impedes the production of cell wall mannoproteins, causing cell wall fragility, fungal cell death and decreased potential for biofilm formation
- Potent broad-spectrum activity against resistant yeasts, molds and dimorphic fungi, including azoleresistant phenotypes
- IV and oral availability enables treatment in both inpatient and outpatient settings
- US FDA fast track status, QIDP and orphan drug designations







Friedman DZP, Schwartz IS. Infect Dis Clin North Am. 2023;37:593-616.

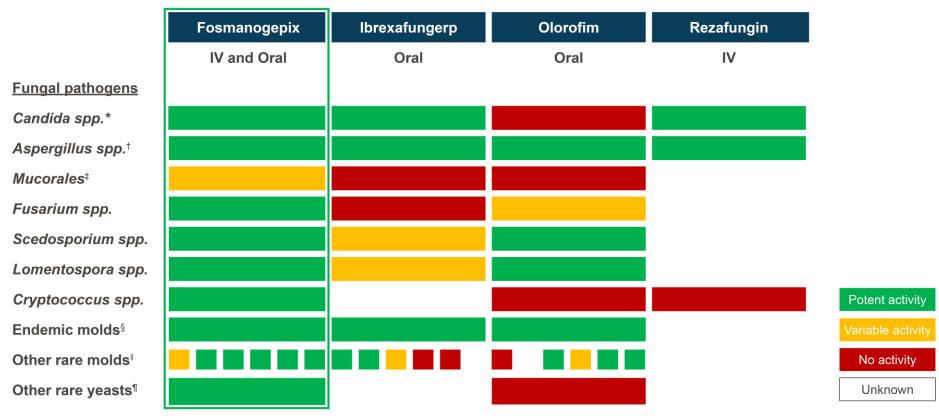
### Addressing high unmet medical needs

- Fast track status by the US FDA for invasive candidiasis, invasive aspergillosis, scedosporiosis, fusariosis, mucormycosis, cryptococcosis, and coccidioidomycosis
- Addressing emerging resistance issues in yeast infections including Candida auris and azole resistant Aspergillus spp.
- Potent activity against mold infections including difficult-to-treat Fusarium and Scedosporium spp.
- Wide tissue distribution enabling treatment of disseminated infections including CNS
- Favorable drug-drug interaction profile
- In-vivo synergism with liposomal amphotericin B and echinocandins may provide utility for the most difficult-to-treat infections

Hoenigl M, Sprute R, Egger M, at al. Drugs. 2021;81:1703-1729.
Winston DJ, Young PA, Schlamm HT, Schiller GJ. Clin Infect Dis. 2023:ciad309.
Gebremariam T, Gu Y, Alkhazraji S, et al. Antimicrob Agents Chemother. 2022;66:e0038022.



# Addressing high unmet medical needs (cont)



<sup>\*</sup> including C. albicans, C. auris, C. dubliniensis, C. glabrata, C. krusei, C. lusitaniae, C.parapsilosis, C. tropicalis. Fosmanogepix not active against C. krusei.



<sup>†</sup> including A. calidoustus, A. fumigatus (including azole-resistant), A. flavus, A. lentulus, A. nidulans, A. niger, A. terreus, A. tubingensis.

<sup>‡</sup> including Cunninghamella spp., Lichtheimia spp., Mucor spp., Rhizopus spp.

<sup>§</sup> including Blastomyces dermatitidis, Coccidioides immitis, Histoplasma capsulatum.

including Alternaria alternata, Cladosporium spp. Paecilomyces variotii, Purpureocillium lilacinum, Scopulariosis spp., Rasamsonia spp.

<sup>¶</sup> including Trichosporon asahii, Exophiala dermatitidis, Malassezia furfur.

### Completed clinical phase 1/2 program

Seven phase 1 studies in healthy subjects	Seven	phase 1	studies	in	healthy	subjects
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Established dose range and safety/tolerability profile

>90% oral bioavailability

No significant food effect

Broad tissue distribution to relevant target organs (mass balance study)

Low propensity for CYP3A4 inhibition

#### One phase 1 B study in neutropenic patients with AML

Consistent safety and tolerability profile

# Three phase 2 studies in patients with candidemia, candidemia with *C. auris*, and invasive mold infections

 Proof of concept achieved based on survival and clinical success rates adjudicated by an independent review committee

 Safety and tolerability characterized by drug-related adverse events of headache, dizziness, fatigue, nausea and vomiting Fosmanogepix treatment up to

6 weeks

Fosmanogepix treatment up to

2 weeks

Fosmanogepix treatment up to

6 weeks

#### More than 300 subjects treated with fosmanogepix

Shaw KJ, Ibrahim AS. J Fungi (Basel). 2020; 6:239. Hodges MR, Ople E, Wedel P, et al. Antimicrob Agents Chemother. 2023;67:e0162322. Vazquez JA, Pappas PG, Boffard K, et al. Antimicrob Agents Chemother. 2023;67(5):e0141922. Pappas PG, Vazquez JA, Oren I, et al. J Antimicrob Chemother. 2023:dkad256



### Planned global phase 3 program

#### Candidemia / Invasive candidiasis

- Randomized, double-blind, non-inferiority study
  - Approximately 450 patients
- Fosmanogepix IV (oral step-down fosmanogepix)
   vs caspofungin IV (oral step-down to fluconazole)
- Primary endpoints
  - FDA: Survival at 30 days
  - EMA: Overall response at end-of-study treatment
- Protocol and initial Health Authority approvals obtained
- Expected study start mid-2024

#### **Invasive mold infections (IMI)**

- Randomized, open-label study including non-controlled salvage treatment arm
  - Approximately 200 patients
- Cohorts of invasive mold disease including IMI caused by:
  - Aspergillus spp.
  - Fusarium spp.
  - Scedosporium spp.
  - Lomentospora prolificans
  - Mucorales fungi, or
  - Other multi-drug resistant molds
- Fosmanogepix IV or oral vs best available therapy
- Endpoints include survival and overall response
- Expected study start end-2024

**Antifungal** 

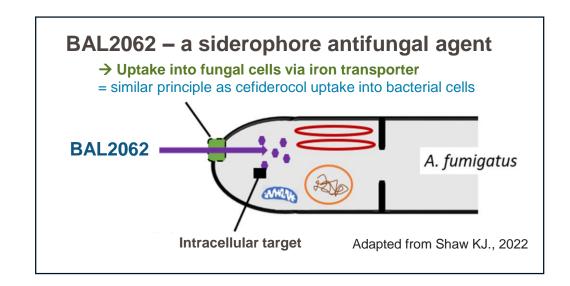
### **BAL2062**

Invasive Aspergillus infections



#### **Profile of BAL2062**

- First-in class antifungal with novel mechanism of action for intravenous administration
- Rapid fungicidal activity in vitro against Aspergillus spp.<sup>1</sup>
- Lack of cross resistance with marketed antifungal agents<sup>2</sup>
- Active against azole- and amphotericin B-resistant Aspergillus spp.<sup>2</sup>
- Active in invasive pulmonary aspergillosis animal models<sup>1</sup>
- Low propensity for CYP-450 mediated drug-drug interactions<sup>2</sup>



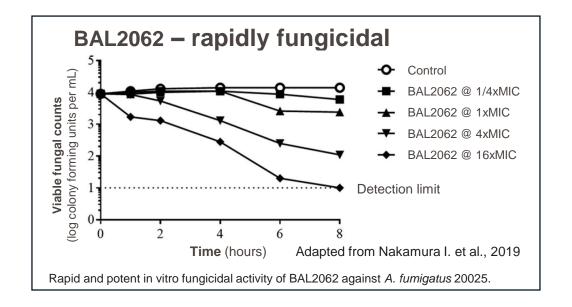
<sup>&</sup>lt;sup>2</sup> Shaw KJ. J Fungi (Basel). 2022; 8:909.



<sup>&</sup>lt;sup>1</sup> Nakamura I, Ohsumi K, Takeda S, et al. Antimicrob Agents Chemother. 2019;63:e02689-18.

#### Profile of BAL2062 cont.

- Clinical safety and tolerability demonstrated in phase 1 study<sup>1</sup>
- Potential for enhanced clinical efficacy addressing unmet medical needs in invasive aspergillosis and other invasive fungal infections
- Plan to start clinical phase 2 program in H1 2025 based on results from additional preclinical profiling studies
- QIDP, Orphan Drug and Fast Track designations granted from the FDA for invasive aspergillosis<sup>2</sup>



<sup>&</sup>lt;sup>2</sup> Shaw KJ. J Fungi (Basel). 2022; 8:909.



<sup>&</sup>lt;sup>1</sup> Mammen MP, Armas D, Hughes FH, et al. Antimicrob Agents Chemother. 2019;63:e00969-19.



#### Zevtera® — An introduction

- Broad-spectrum hospital anti-MRSA cephalosporin (including Gram-negative bacteria)
  - Rapid bactericidal activity
  - Potential to replace antibiotic combinations
  - Efficacy demonstrated in phase 3 clinical studies in SAB, ABSSSI and pneumonia<sup>1, 2, 3</sup>
  - Low propensity for resistance development<sup>1</sup>
  - Safety profile consistent with the cephalosporin class safety profile, demonstrated in both adult and pediatric patients<sup>1, 2, 3, 4</sup>
- Marketed in selected countries in Europe,
   Latin America, the MENA-region and Canada
- US FDA PDUFA target action date April 3, 2024

Approved in major European countries & several non-European countries for both hospital-acquired bacterial pneumonia (HABP), excluding ventilator-associated pneumonia (VAP), and community-acquired bacterial pneumonia (CABP). Not approved in the US

MENA: Middle East and North Africa





<sup>&</sup>lt;sup>1</sup> Syed YY. Drugs. 2014;74:1523-1542 and Basilea data on file.

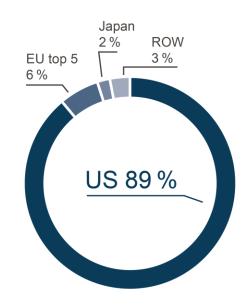
<sup>&</sup>lt;sup>2</sup> Overcash JS et al. Clin Infect Dis. 2021;73:e1507-e1517.

<sup>&</sup>lt;sup>3</sup> Holland TL et al. N Engl J Med 2023;389:1390-1401.

<sup>&</sup>lt;sup>4</sup> Rubino CM et al. Pediatr Infect Dis J. 2021;40:997-1003.

# The hospital anti-MRSA antibiotic market — A USD 2.4 bn market\* with the US being the most important region

Daptomycin sales by region (2015, before LOE)



Ceftaroline sales by region (MAT Q3 2023)



MRSA: Methicillin-resistant Staphylococcus aureus; LOE: Loss of exclusivity; ROW: Rest Of World; MAT: Moving annual total; Source: IQVIA Analytics Link, September 2023



<sup>\*</sup> Vancomycin, linezolid, teicoplanin, daptomycin, tigecycline, telavancin, ceftaroline, dalbavancin, ceftobiprole, oritavancin and tedizolid (daptomycin and tigecycline are partial sales in the US in IQVIA data)

# Ceftobiprole — Strategy for accessing the US market

- FDA accepted NDA submission for three indications:
  - 1. Staphylococcus aureus bacteremia (SAB)<sup>1</sup>
  - Acute bacterial skin and skin structure infections (ABSSSI)<sup>2</sup>





3. Previously completed phase 3 study in community-acquired bacterial pneumonia (CABP) as a third indication<sup>3</sup>

- PDUFA target action date April 3, 2024
- Phase 3 program largely funded by BARDA (~USD 112 million, or approximately 75 percent of the costs related to the SAB and ABSSSI phase 3 studies, regulatory activities and non-clinical work)
- Qualified Infectious Disease Product (QIDP) designation extends US market exclusivity to 10 years from approval
- Commercialization planned through partnership
  - Partnership expected prior to regulatory decision



<sup>&</sup>lt;sup>3</sup> Nicholson SC et al. International Journal of Antimicrobial Agents 2012 (39), 240-246.



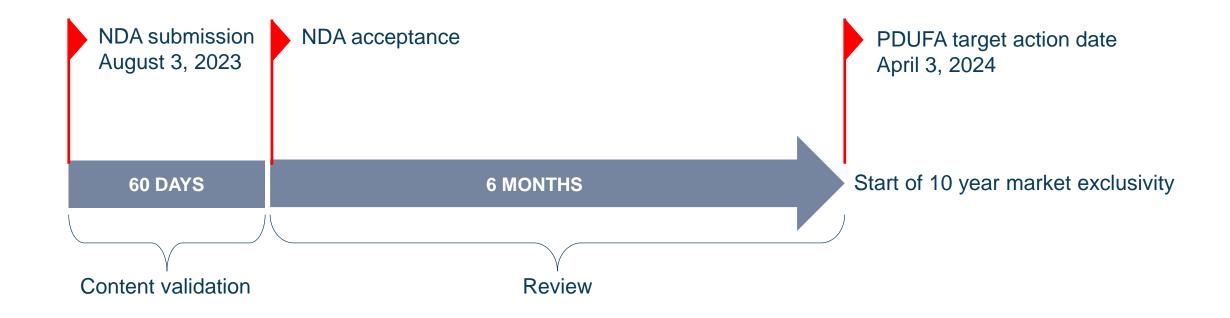
<sup>&</sup>lt;sup>1</sup> Holland TL et al. N Engl J Med 2023;389:1390-1401.

<sup>&</sup>lt;sup>2</sup> Overcash JS et al. Clin Infect Dis. 2021;73:e1507-e1517.

# Ceftobiprole — FDA's NDA review process for a Qualified Infectious Disease Product

Ceftobiprole was granted QIDP status for SAB, ABSSSI and CABP

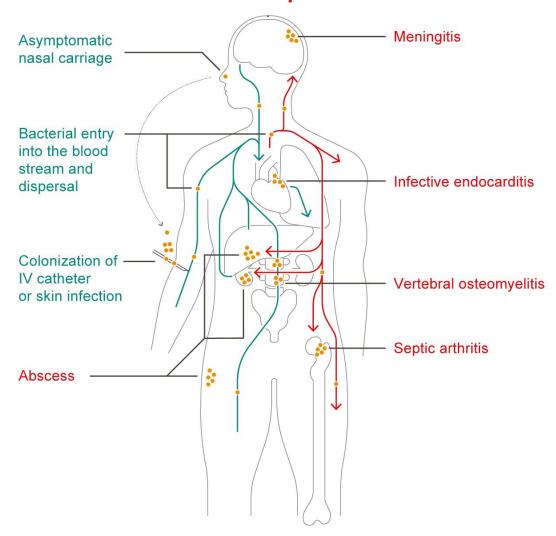
QIDP status provides 6 month priority review and extends market exclusivity to 10 years



# SAB – An area with high medical need

- Nearly 120,000 S. aureus bloodstream infections in the US (in 2017)<sup>1</sup>
- ERADICATE targets complicated SAB, characterized by concomitant or metastatic infections such as bone, joint or heart valve infections; persistent bacteremia; or bacteremia in patients on dialysis
- Substantial morbidity and approximately 20% 30-day mortality<sup>2</sup>
- Limited antibiotic treatment options with only two approved treatments for SAB in the US that cover both MSSA and MRSA, i.e. vancomycin and daptomycin

#### Causes and consequences of SAB



Adapted from Edwards AM et al. Trends Microbiol. 2011;19:184-190.

<sup>2</sup> Hamed K et al. Future Microbiol. 2020;15:35-48. MRSA: methicillin-resistant *Staphylococcus aureus* MSSA: methicillin-susceptible *Staphylococcus aureus* 



<sup>&</sup>lt;sup>1</sup> MMWR, 2019;68:214–219.

# ERADICATE — The largest phase 3 registrational study conducted in SAB<sup>1</sup>

- ERADICATE is the largest phase 3 study conducted for registrational purposes of a new antibiotic treatment in Staphylococcus aureus bacteremia.
- The randomized, double-blind, multicenter phase 3 study was a global study performed in 60 study centers in 17 countries from August 2018 to March 2022.
- 390 patients were randomized to ceftobiprole or daptomycin, with or without intravenous aztreonam for coverage of Gram-negative pathogens, for up to 42 days of treatment.
- Patient characteristics in the 387 patients included in the modified intent-to-treat (mITT) population were balanced between the treatment groups.
- Primary objective of demonstrating non-inferiority compared to daptomycin was achieved, similar outcomes observed for secondary endpoints.

<sup>&</sup>lt;sup>1</sup> Holland TL et al. N Engl J Med 2023;389:1390-1401.



### Ceftobiprole — Place in therapy

- Excellent treatment option in difficult-to-treat patients presenting to the hospital with severe infections, especially
  when the clinician suspects involvement of Gram-positive pathogens including Staphylococcus aureus
- Single agent first-line bactericidal broad-spectrum therapy with proven efficacy in SAB, ABSSSI and CABP, enabling to treat these vulnerable patients effectively early in their disease to achieve recovery
- Ceftobiprole is differentiated versus competitors in various clinically important aspects, including:
  - The strong, bactericidal activity against MSSA and MRSA
  - A robust Gram-negative coverage
  - Efficacy demonstrated in pulmonary infections in phase 3 studies
  - The safety profile reflecting the cephalosporin class
  - The low propensity for resistance development

# Focused launch in area of highest unmet medical need with opportunities for broader utilization

#### Patient numbers in the United States

- Staphylococcus aureus bacteremia (SAB): 120,000 cases¹
- Acute bacterial skin and skin structure Infections (ABSSSI): >600,000 hospitalizations per year<sup>2</sup>
- Community-acquired bacterial pneumonia (CABP):
   >1,500,000 hospitalizations per year<sup>3</sup>

Other indications (e.g. CABP)

ABSSSI leading to bacteremia

SAB-associated bone & joint infections, endocarditis

SAB

<sup>&</sup>lt;sup>3</sup> Ramirez JA et al. Clin Infect Dis. 2017:65:1806-1812.



<sup>&</sup>lt;sup>1</sup> Kourtis AP et al. MMWR Morb Mortal Wkly Rep. 2019;68:214-219.

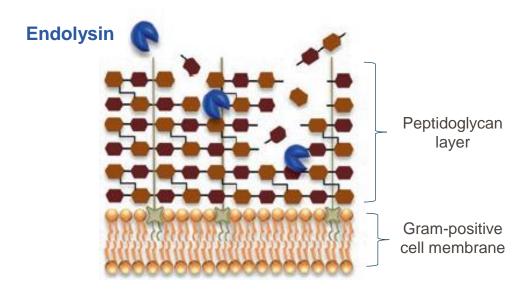
<sup>&</sup>lt;sup>2</sup> Edelsberg J et al. Emerg Infect Dis. 2009;15:1516-8.



### **Endolysins** — Overview

- Endolysins are recombinant proteins from bacteriophages
  - Responsible for cell wall cleavage and bacterial cell lysis
- Pathogen-specific spectrum
- Advantages over conventional antibiotics<sup>1, 2</sup>
  - Rapid killing of bacterial cells
  - Effective against multidrug-resistant bacteria and biofilms
  - Low risk of resistance development
  - Minimal off-target damage preventing significant microbiome disruption
  - Synergy with standard-of-care antibiotics
  - Typically used in combinations

# Schematic representation of endolysin effects on Gram-positive bacteria



Reference: Dams D and Briers Y, 2019<sup>3</sup>

<sup>&</sup>lt;sup>3</sup> Dams D, Briers Y Adv Exp Med Biol. 2019:1148:233-253



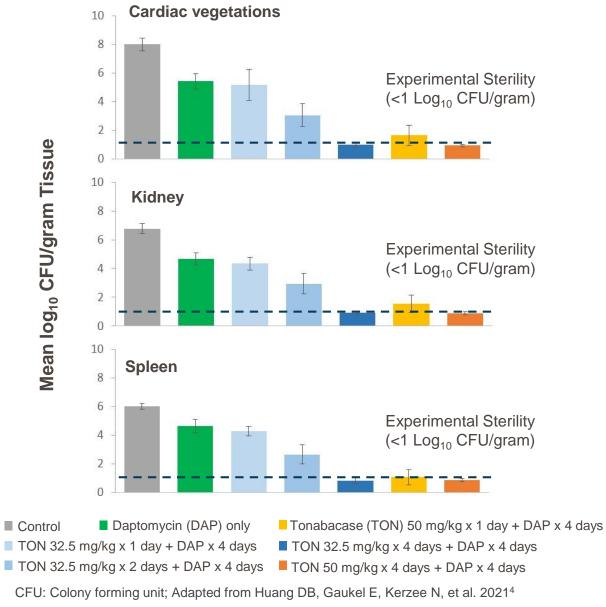
<sup>&</sup>lt;sup>1</sup> Liu H, Hu Z, Li M et al. J Biomed Sci 2023 (30), 29

<sup>&</sup>lt;sup>2</sup> Abdelrahman F, Easwaran M, Daramola O et al. Antibiotics 2021 (10) 124

#### Profile of tonabacase

- Potential first-in-class antibiotic of the endolysin class for the treatment of severe staphylococcal infections
  - Potential for superiority in combination therapy vs. standard-of-care antibiotics
- Activity in *S. aureus* infection models
  - Activity against MRSA and MSSA<sup>1</sup>
- Clinical safety and tolerability demonstrated in phase 1 studies<sup>2, 3</sup>
  - Potential to administer multiple doses of tonabacase
- Plan to start clinical phase 2 program in 2025 upon completion of preclinical profiling
  - Evaluation license and exclusive option to license upon successful completion of preclinical profiling

#### Reduction of MRSA counts (cardiac vegetations, kidneys, and spleen) in left-sided endocarditis model



<sup>&</sup>lt;sup>1</sup> Kim NH, Park WB, Cho JE et al. Antimicrob Agents Chemother 2018 (62), e00731-18

<sup>&</sup>lt;sup>2</sup> Jun SY, Jang J, Yoon S. et al. Antimicrob Agents Chemother 2017 (61), e02629-16

<sup>&</sup>lt;sup>3</sup> Wire MB, Jun SY, Jang IJ et al. Antimicrob Agents Chemother 2022 (66), e01842-21

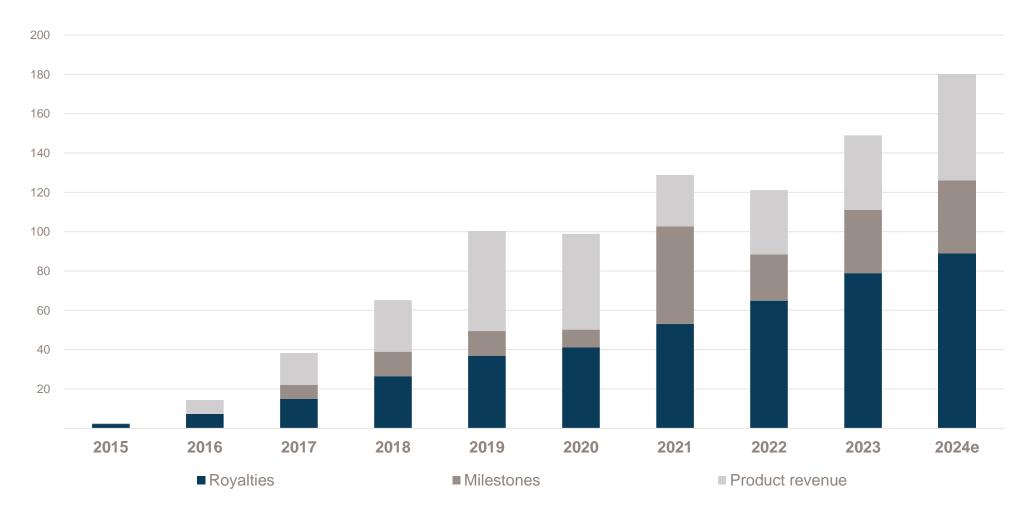
<sup>&</sup>lt;sup>4</sup> Huang DB, Gaukel E, Kerzee N, et al. Antimicrob Agents Chemother 2021 (65), e00508-21



**Financials & Outlook** 

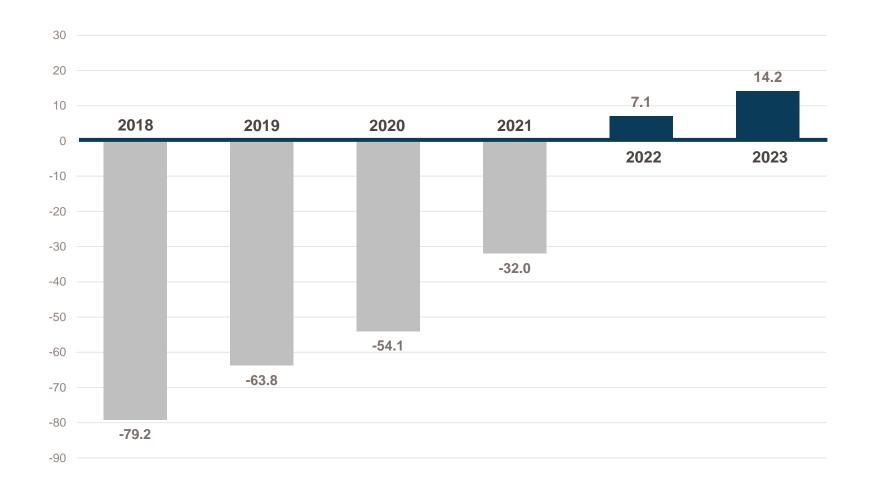


# Cresemba and Zevtera-related revenue breakdown (in CHF mn)





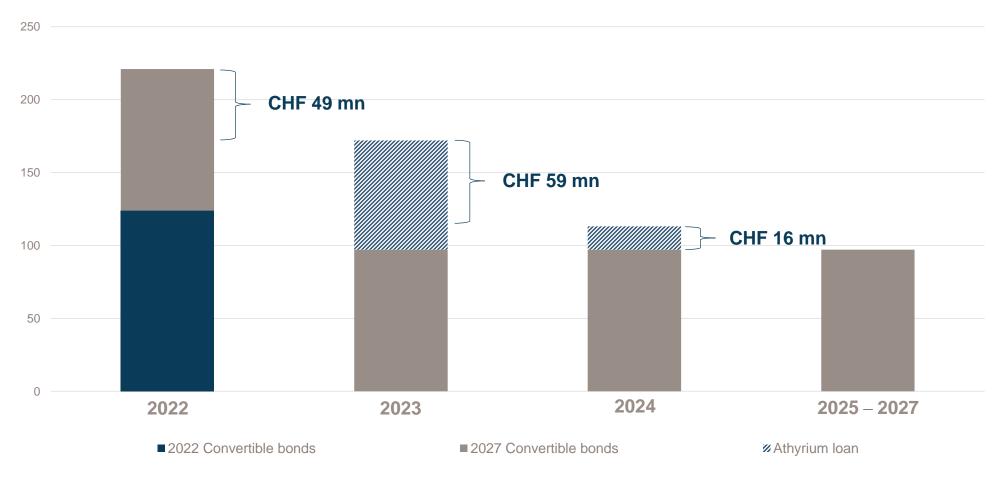
#### Cash flows from operating activities (in CHF mn)



Note: Consolidated figures in conformity with US GAAP; rounding applied consistently



#### CHF 124 mn non-dilutive debt level reduction 2022-2024



Note: Figures (in CHF mn) as of the beginning of the fiscal year; rounding applied consistently

#### 2024 Guidance – 20% increase in Cresemba and Zevterarelated revenue and more than doubling of net profit

In CHF mn	FY 2024 guidance*	FY 2023
Cresemba and Zevtera related revenue	~180	150.3
of which royalty income	~89	78.9
Total revenue	~183	157.6
Cost of products sold Operating expenses	~33 ~120	26.8 111.6
Operating profit	~30	19.2
Net profit	~25	10.5

<sup>\*</sup> Excluding the impact of in-licensing and acquisitions

Note: Consistent rounding was applied.



#### **Key milestones**

	Product	H2 2023	H1 2024	H2 2024
Antibacterials	Ceftobiprole (Zevtera)	US NDA submission	Regulatory decision in the US (PDUFA target action date April 3)	
		US NDA accepted for review	Executing US partnership (prior to PDUFA target action date)	
	Tonabacase	Evaluation license & exclusive option to license		Decide on definitive licensing option
Antifungals	Isavuconazole (Cresemba)	Pediatric submissions  Decision on US pediatric extension	Decision on EU pediatric extension	
	Fosmanogepix	Acquisition of rights	Initiate phase 3 study in candidemia / invasive candidiasis (mid-2024)	Initiate phase 3 study in mold infections (around year-end)
	BAL2062	Acquisition of rights		

**Increasing Cresemba & Zevtera revenue** 

In-licensing and acquisition of anti-infectives

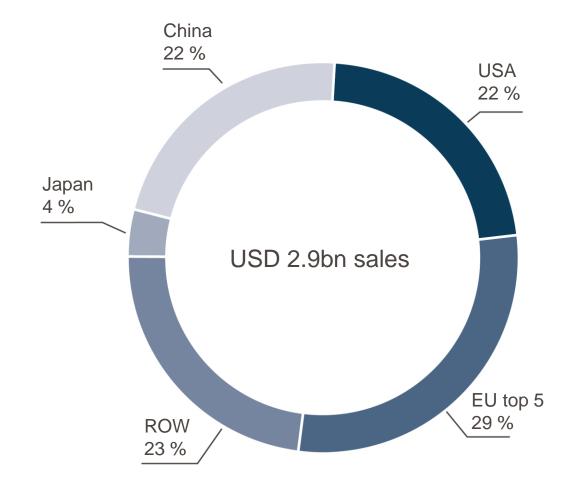
Advancement of preclinical anti-infective assets



### Appendix

#### Significant growth potential for Cresemba

- USD 2.9 bn sales of best-in-class antifungals\* (MAT Q3 2023)
- Recently launched in Japan and China, representing 26% of global potential



<sup>\*</sup> Best-in-class antifungals: Cresemba (isavuconazole), posaconazole, voriconazole, AmBisome, anidulafungin, caspofungin, micafungin



MAT: Moving annual total; Source: IQVIA Analytics Link, September 2023

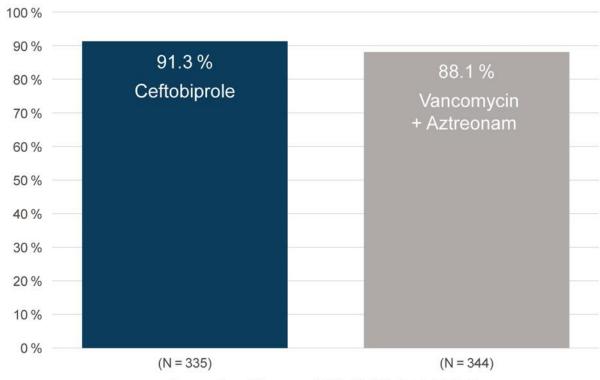
# Ceftobiprole — Positive phase 3 results reported in ABSSSI

Results showing non-inferiority of ceftobiprole to vancomycin plus aztreonam for the primary and secondary endpoints<sup>1</sup>



### Early clinical response at 48–72h after start of treatment (ITT population)

Patients with early clinical success at 48 – 72 hours (%)



Proportion difference (95% CI) (%): 3.3 (-1.2, 7.8)

<sup>1</sup> Overcash JS et al. Clin Infect Dis. 2021;73:e1507-e1517. ITT: intent-to-treat

Pre-defined limit of non-inferiority = lower limit of 95 % Cl for difference > -10 %



Creating anti-infective opportunities

# Ceftobiprole — Positive phase 3 results reported in ABSSSI

Key topline study<sup>1</sup> results showing non-inferiority of ceftobiprole to vancomycin plus aztreonam for the primary and secondary endpoints

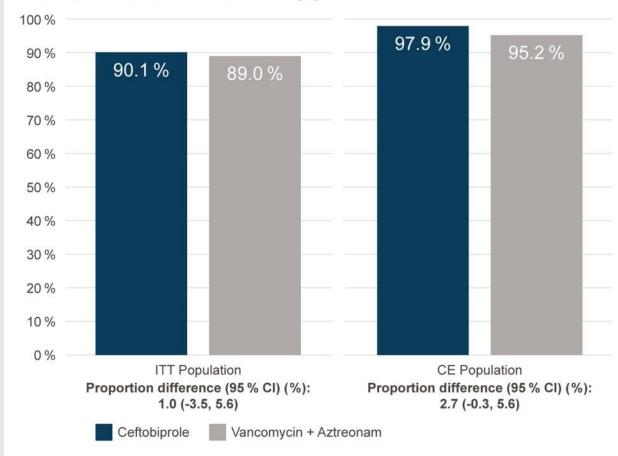


<sup>1</sup>NCT03137173 ABSSSI: Acute bacterial skin and skin structure infections

#### (basilea)

Investigator-assessed clinical success at test-of-cure (TOC) 15-22 days after randomization (ITT, CE populations)

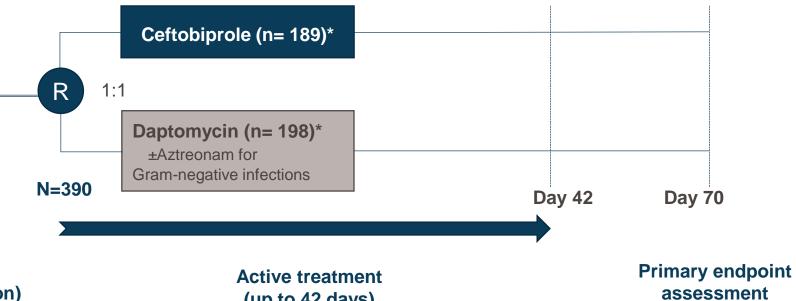
Patients with clinical success at the TOC visit (%)



CE: clinically evaluable; ITT: intent-to-treat

#### ERADICATE — SAB¹ Study design

- Patients age ≥ 18 years
- SAB based on ≥1 positive blood culture within 72 h of randomization
- Confirmed or suspected complicated SAB or definitive right-sided infective endocarditis
- Requirement for ≤ 42 days of antibacterial treatment



**Screening assessments** (up to 72 hours prior to randomization) (up to 42 days)

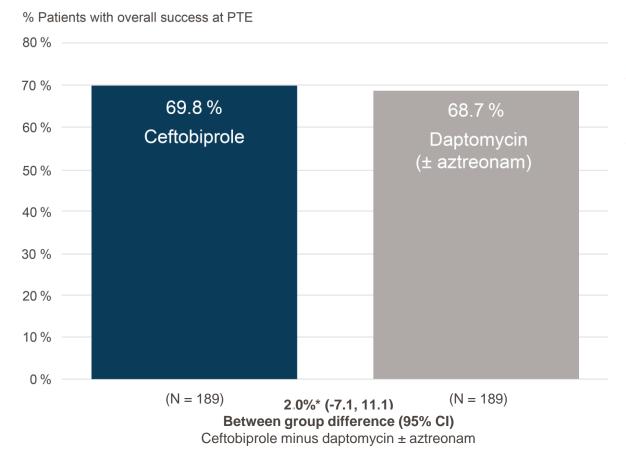
Adapted from Hamed K et al. Future Microbiol. 2020;15:35-48

<sup>&</sup>lt;sup>1</sup> Holland TL et al. N Engl J Med 2023;389:1390-1401.

<sup>\*</sup>Ceftobiprole was administered 500 mg q6h on Day 1-8 and 500 mg q8h from Day 9 onwards. Daptomycin was administered at 6mg/kg up to 10 mg/kg q24h. Three patients in the ITT population were excluded from the modified intent-to-treat population (mITT): One patient was randomized but not dosed, and two patients did not have a positive S. aureus blood culture at baseline

#### Primary endpoint in SAB is achieved

#### (DRC assessed overall success at PTE in mITT population)

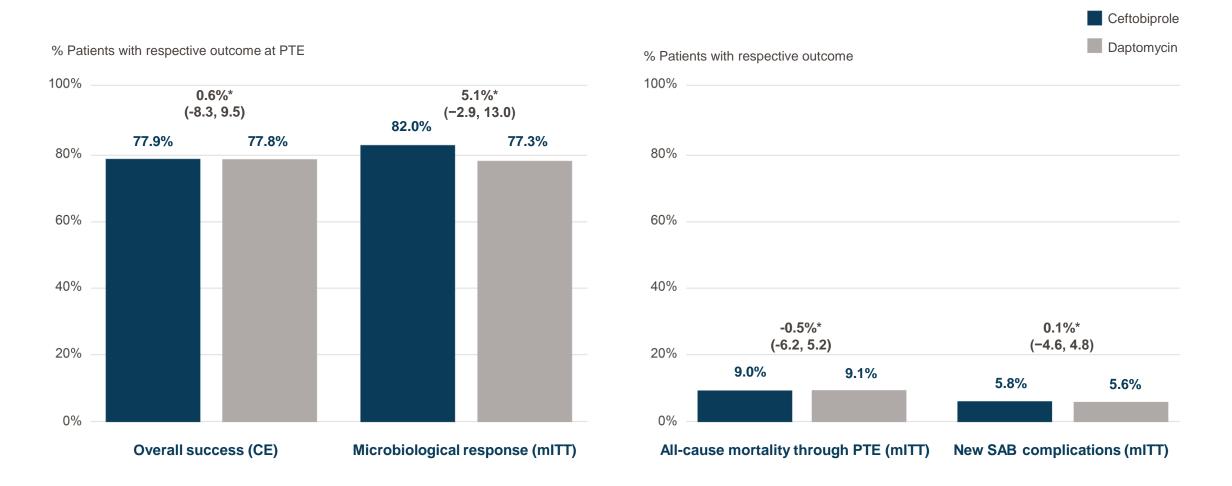


- Non-inferiority demonstrated based on the pre-defined non-inferiority margin of 15%
- Consistent results in key subgroups and various categories of underlying conditions:
  - MSSA or MRSA bloodstream infections at baseline
  - Skin and skin structure infections
  - Abdominal abscesses
  - Chronic dialysis
  - Septic arthritis
  - Osteomyelitis
  - Definite right-sided infective endocarditis
  - Patients with persistent SAB

DRC: Data review committee; PTE: Post-treatment evaluation visit at 70 days post-randomization \*Cochran-Mantel-Haenszel (CMH) weights method adjusted for actual stratum (dialysis status and prior antibacterial treatment use)



#### Secondary efficacy outcomes in SAB are similar



<sup>\*</sup> Between-group difference (95%CI) of ceftobiprole minus daptomycin (± aztreonam), adjusted for actual stratum (dialysis status and prior antibacterial treatment use) using Cochran-Mantel-Haenszel weights method. CE: Clinically evaluable population.

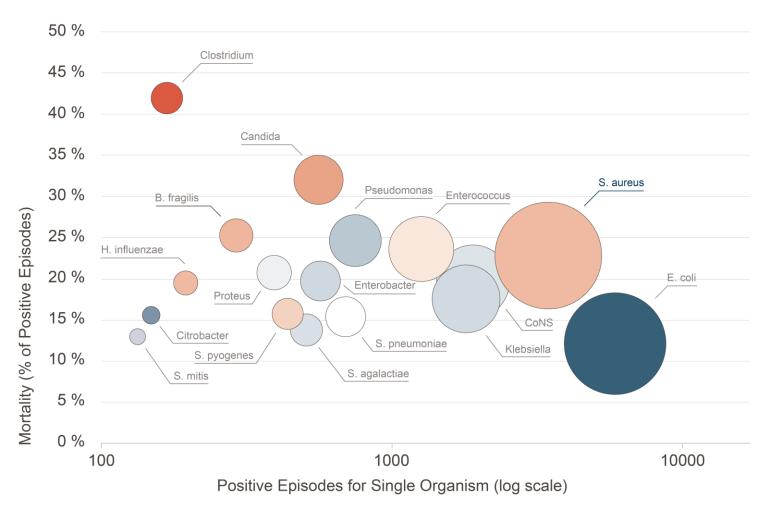


49

#### **ERADICATE** — Further SAB results

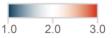
- Median time to Staphylococcus aureus bloodstream clearance
  - MSSA: 3 days with ceftobiprole and 4 days with daptomycin
  - MRSA: 5 days for both ceftobiprole and daptomycin
- Emergence of resistance under treatment was observed in three patients on daptomycin.
   No emergence of resistance under treatment was observed with ceftobiprole
- Observed ceftobiprole safety and tolerability profile is consistent with previous phase 3 studies and the postmarketing experience
- Ceftobiprole was well tolerated and overall rate of adverse events similar between the ceftobiprole and daptomycin groups; gastrointestinal side effects were more frequent with ceftobiprole (mainly driven by mild to moderate nausea)

## SAB — Highest disease burden among bloodstream infections



- Circle areas reflect total number of deaths
- Color coding represents the risk of dying from the pathogen relative to a control

Adjusted Mortality OR



Adapted from: Verway M et al. J Clin Microbiol. 2022;60:e0242921.

51

#### In-licensing focus



#### Partner of choice in the anti-infectives space

- Strong and proven R&D capabilities to bring drugs from research to market
- ✓ Cost-effective business model
- ✓ Experience in accessing non-dilutive funding incentives
- ✓ Financial strength and strong cash flow generation from commercialized brands

#### Antifungals

- Novel mechanisms of action
- Addressing areas of highest unmet medical needs
- Gaining benefits through orphan drug pathways
- Novel formulations

#### Commonalities

- Addressing serious hospital infections with increasing medical need
- Innovative & differentiated assets with potential for successful commercialization
- In-licensing assets from late stage research through to end of phase 2

#### Antibacterials

- Traditional and non-traditional approaches
- Potential for demonstrating superiority
- Balance development risks to optimize market access/label



## Glossary

ABSSSI: Acute bacterial skin and skin structure infections

AML Acute Myeloid Leukemia

BARDA: Biomedical Advanced Research and Development Authority

CABP: Community-acquired bacterial pneumonia

CE: Clinically evaluable

CARB-X: Combating Antibiotic-Resistant Bacteria Biopharmaceutical

Accelerator

CNS Central Nervous System

CYP-450 Cytochrome-P-450 enzymes

DRC: Data review committee

European Medicines Agency

FDA: US Food and Drug Administration

HABP: Hospital-acquired bacterial pneumonia

- IMI: Invasive **m**old **i**nfections

ITT: Intent-To-Treat

i.v.: Intravenous

mITT: Modified intent-to-treat

- MSSA: **M**ethicillin-**s**usceptible **S**taphylococcus **a**ureus

Methicillin-resistant Staphylococcus aureus

NDA: New Drug Application

OR: Odds ratio

PD: Pharmacodynamic

PK: Pharmacokinetic

PDUFA Prescription Drug User Fee Act

PTE: Post-treatment evaluation

QIDP: Qualified Infectious Disease Product

SAB: Staphylococcus aureus bacteremia

SPA: Special Protocol Assessment

US GAAP: United States Generally Accepted Accounting Principles

- VAP: **V**entilator-**a**ssociated **p**neumonia

#### Disclaimer and forward-looking statements

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**Creating anti-infective opportunities** 

Hegenheimermattweg 167b 4123 Allschwil Switzerland

info@basilea.com www.basilea.com

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